

WHAT IS CLAIMED IS:

1. A method of manufacturing a flat aluminum electrolytic capacitor comprising a separator impregnated with an electrolytic solution, an anode foil and a cathode foil, a flat capacitor element that has external lead-out terminals connected respectively to said anode foil and cathode foil, and a flexible casing that houses the capacitor element and is hermetically sealed, said method comprising the steps of encasing the capacitor element in the flexible casing and applying aging treatment before hermetically sealing the casing, and hermetically sealing the flexible casing.

2. A method of manufacturing a flat aluminum electrolytic capacitor comprising a separator impregnated with an electrolytic solution, an anode foil and a cathode foil, a flat capacitor element that has external lead-out terminals connected respectively to said anode foil and cathode foil, and a flexible casing that houses the capacitor element and is hermetically sealed, said method comprises the steps of encasing the capacitor element in a predetermined casing and applying aging treatment under sealed condition, purging a gas that has been generated within, and hermetically sealing the flexible casing.

3. A method of manufacturing a flat aluminum electrolytic capacitor comprising a separator impregnated with an electrolytic solution, an anode foil and a cathode foil, a flat capacitor element that has external lead-out terminals connected respectively to said anode foil and cathode foil and a flexible casing that houses the capacitor element and is hermetically sealed, said method comprises the steps of aging the capacitor element while impregnating with the electrolytic solution, and hermetically sealing the flexible casing.

4. The method of manufacturing a flat aluminum electrolytic capacitor according to any one of claims 1 to 3, further comprising the step of carrying out the

aging treatment again after the step of hermetically sealing the flexible casing.

5 5. The method of manufacturing a flat aluminum electrolytic capacitor according to any one of claims 1 to 3, further comprising a step of carrying out
impregnation with the electrolytic solution before encasing said capacitor element in the flexible casing, or carrying out impregnation with the electrolytic solution within the flexible casing after encasing the
10 capacitor element in the flexible casing.

 6. The method of manufacturing a flat aluminum electrolytic capacitor according to any one of claims 1 to 3, further comprising the step of once again
impregnating the capacitor element, that has been
15 subjected to the aging treatment, with the electrolytic solution.

 7. The method of manufacturing a flat aluminum electrolytic capacitor according to claim 6, wherein electrolytic solutions of different compositions are used
20 in the first and the second impregnation steps.

 8. The method of manufacturing a flat aluminum electrolytic capacitor according to any one of claims 1 to 3, wherein the flexible casing is hermetically sealed
under the condition of reduced pressure below 1 atm. in
25 order to reduce voids in the flexible casing, after encasing said capacitor element in the flexible casing.

 9. The method of manufacturing a flat aluminum electrolytic capacitor according to any one of claims 1 to 3, wherein the aging treatment is carried out at least
30 once at an ambient temperature in a range from 10 to 125°C.

 10. The method of manufacturing a flat aluminum electrolytic capacitor according to any one of claims 1 to 3, wherein the aging treatment is carried out under
35 the condition of reduced pressure.

 11. The method of manufacturing a flat aluminum electrolytic capacitor according to any one of claims 1

to 3, wherein the aging treatment is carried out while applying a voltage stepwise.

12. The method of manufacturing a flat aluminum electrolytic capacitor according to any one of claims 1 to 3, wherein the aging treatment is carried out at a constant voltage.

13. The method of manufacturing a flat aluminum electrolytic capacitor according to any one of claims 1 to 3, wherein said flat capacitor element has a stacked structure formed by laminating the anode foil and the cathode foil of a predetermined size alternately via separators, or winding a laminate of long anode and cathode foils laminated one on another with the resultant roll being flattened.

14. The method of manufacturing a flat aluminum electrolytic capacitor according to any one of claims 1 to 3, further comprising a step of carrying out the aging treatment after encasing the capacitor element, that has been encased in the flexible casing, in an outer casing having a higher strength.

15. A flat aluminum electrolytic capacitor comprising a separator impregnated with an electrolytic solution, an anode foil and a cathode foil, a flat capacitor element that has external lead-out terminals connected respectively to the anode foil and the cathode foil, and a flexible casing that houses the capacitor element and is hermetically sealed, wherein the electrolytic capacitor is subjected to an aging treatment before encasing said capacitor element in the flexible casing and hermetically sealing the flexible casing.

16. A flat aluminum electrolytic capacitor comprising a separator impregnated with an electrolytic solution, an anode foil and a cathode foil, a flat capacitor element that has external lead-out terminals connected respectively to the anode foil and the cathode foil, and a flexible casing that houses the capacitor element and is hermetically sealed, wherein the

electrolytic capacitor is encased in a predetermined casing, subjected to an aging treatment under sealed condition, with a gas generated during the treatment being discharged to the outside, the flexible casing then
5 being hermetically sealed.

17. A flat aluminum electrolytic capacitor comprising a separator impregnated with an electrolytic solution, an anode foil and a cathode foil, a flat capacitor element that has external lead-out terminals
10 connected respectively to the anode foil and the cathode foil and a flexible casing that houses the capacitor element and is hermetically sealed, wherein the electrolytic capacitor is subjected to an aging treatment while being impregnated with the electrolytic solution,
15 and is then encased in the flexible casing.

18. The flat aluminum electrolytic capacitor according to any one of claims 15 to 17, wherein the electrolytic solution of the flat aluminum electrolytic capacitor contains at least one kind of a nitro compound.

19. The flat aluminum electrolytic capacitor according to any one of claims 15 to 17, wherein the flat aluminum electrolytic capacitor is an aluminum
20 electrolytic capacitor for use at a mid- to high-voltage of 100 V or higher, or an aluminum electrolytic capacitor
25 for a strobe flash.